What is claimed is:

1. Purified microsporidian polar tube protein.

2. The protein according to Claim 1, wherein the protein has an apparent molecular weight of about 55 kDa and an isoelectric point of about 5.

3. The protein according to Claim 1, wherein the protein has an apparent molecular weight of about 35 kDa and an isoelectric point of about 9.

4. A microsporidian polar tube protein comprising the amino acid sequence set forth in SEQ ID No: 1, a fragment or a functionally equivalent derivative thereof.

5. The protein according to Claim 4, comprising the sequence between amino acids 23 and 395 of SEQ ID No: 1.

6. A microsporidian polar tube protein comprising the amino acid sequence set forth in SEQ ID No: 3, a fragment or a functionally equivalent derivative thereof.

7. A microsporidian polar tube protein comprising the amino acid sequence set forth in SEQ ID No: 2, a fragment or a functionally equivalent derivative thereof.

8. The protein according to Claim 7, comprising the sequence between the amino acids in positions 1 and 277 of SEQ ID No: 2.

9. A microsporidian polar tube protein comprising the amino acid sequence set forth in SEQ ID No: 4, a fragment or a functionally equivalent derivative thereof.

10. The protein according to Claim 9, comprising the sequence between the amino acids in positions 1 and 275 of SEQ ID No: 4.

11. A microsporidian polar tube protein comprising the amino acid sequence set forth in SEQ ID No: 5, a fragment or a functionally equivalent derivative thereof.

12. The protein according to Claim 11, comprising the sequence between the amino acids in positions 1 and 272 of SEQ ID No: 5.

13. Anti-microsporidian polar tube protein antibodies which are capable of binding at least one protein of Claim 1.

14. A process for diagnosing infections caused by microsporidians of genus *Encephalitozoon* comprising:

a) immobilizing a recombinant microsporidian polar tube protein of Claim 1 on a support,

b) incubating product obtained in step (a) with antibodies from serum of a test subject,

c) incubating the product of step (b) with labeled antihuman antibodies; and

d) detecting the product of step (c).

15. The process according to Claim 14 further comprising saturating aspecific reactions after step (a) and before step (b).

16. The process according to Claim 14 further comprising washing the product of step (b).

17. The process according to Claim 14 further comprising washing the product of step (c).

18. A diagnostic kit for implementing the process according to Claim 14, comprising:

a support suitable for immobilizing recombinant microsporidian polar tube proteins, and

a solution comprising labeled antihuman antibodies.

19. A nucleic acid molecule comprising a nucleic sequence encoding the protein of Claim 1.

20. The nucleic acid molecule according to Claim 19, comprising the sequence between nucleotides 1 and 1830 of SEQ ID No: 1 or the complement thereof.

21. The nucleic acid molecule according to Claim 19, comprising the sequence between nucleotides 1 and 1113 of SEQ ID No: 3 or the complement thereof.

22. The nucleic acid molecule according to Claim 19, comprising the sequence between nucleotides 1 and 1740 of SEQ ID No: 2 or the complement thereof.

23. The nucleic acid molecule according to Claim 19, comprising the sequence between nucleotides 1 and 825 of SEQ ID No: 4 or the complement thereof.

24. The nucleic acid molecule according to Claim 19, comprising the sequence between nucleotides 1 and 816 of SEQ ID No: 5 or the complement thereof.

25. A vector comprising at least one nucleic acid molecule according to Claim 19 and at least one regulatory sequence.

26. A host transformed by a nucleic acid molecule according to Claim 16.

27. A host transformed by a vector according to Claim 25.

28. A process for the production or expression in a host of a microsporidian polar tube protein according to Claim 1, comprising:

a) transferring a nucleic acid molecule according to Claim 19 into a cellular host,

b) culturing said cellular host under conditions enabling production of the microsporidian polar tube protein, and

c) isolating said proteins.

29. A process for the production or expression in a host of a microsporidian polar tube protein according to Claim 1, comprising:

a) transferring a vector according to Claim 25 into a cellular host,

b) culturing said cellular host under conditions enabling production of the microsporidian polar tube protein, and

c) isolating said proteins.

30. A labeled nucleotide comprising all or part of a nucleic acid molecule according to Claim 19.

31. A process for the diagnosis of infections caused by the microsporidians of the genus *Encephalitozoon*, comprising:

a) extracting microsporidian spore DNA from a biological sample,

b) amplifying extracted DNA of step (a),

c) immobilizing the product of step (b) on a support, and

d) hybridizing the product of step (c) with the labeled nucleotide probe of Claim 30.

32. A diagnostic kit for the implementation of a process according to Claim 31, comprising:

means for amplifying the sequences to be analyzed,

a support for immobilizing amplified products, and

generic and/or specific labeled probes.

33. A pharmaceutical composition which prevents infections caused by microsporidians of genus *Encephalitozoon* comprising an active protein according to Claim 1 or a fragment thereof and a pharmaceutically acceptable carrier.

34. The pharmaceutical composition of Claim 33 wherein said composition is a vaccine.